National Weather Service Milestones

1891 Weather Bureau becomes responsible for issuing flood warnings.

1894 William Eddy, using kites, makes first temperature observations aloft.

1895 First Washington daily weather map published. Expanded version, covering the Nation, is still published weekly.

1898 President McKinley orders establishment of hurricane warning network in the West Indies.

1900 Cable exchange of weather warnings/information begins with Europe. Devastating Galveston Hurricane kills 6000 including wife of Official-In-Charge and one employee. Hurricane was predicted 4 days in advance, but not the storm surge.

1901 Official three-day forecasts begin for the North Atlantic.

1904 Government begins using aircraft to conduct atmospheric research

1905 The SS *New York* transmits first wireless weather report from a ship at sea.

1909 USWB begins free-rising balloon observations.

1910 USWB begins weekly agricultural planning forecasts and seasonal assessment of water availability for irrigation.

1912 First fire weather forecast issued.

1914 Aerological section established for aviation.

1917 Norwegian meteorologists begin air mass analysis techniques which will revolutionize meteorology.

1918 USWB begins forecasts for domestic military flights and new air mail routes.

1922 Histories of 500 river stations completed.

1927 West Coast prototype for an Airways Meteorological Service established. Lindbergh flys the Atlantic, ignoring a recommended Weather Bureau delay of 12 hours. The forecast was right on.

1928 Teletype replaces the telegraph. Telephone service becomes primary method of communicating weather information.

1931 Aircraft observations to 16,000 feet begin at Chicago, Cleveland, Dallas, and Omaha. The beginning of the end for “kite stations.”

1933 A science advisory group apprises President Roosevelt that the work of the volunteer cooperative observer network is one of the most extraordinary services ever developed, netting the public more per dollar expended than any other government service in the world. By 1990 the 2.5 mile radius network encompasses nearly 10,000 stations.

1935 A hurricane warning service is established. The Smithsonian Institution begins making long-range weather forecasts based on solar cycles. Floating automatic weather instruments mounted on buoys begin collecting marine weather data.

1937 First official Weather Bureau radio meteorograph, or radiosonde sounding made at East Boston, Mass. This program spells the end for aircraft soundings. Twelve pilots die flying weather missions.

1939 USWB initiates automatic telephone weather service in New York City. Radiosondes replace all military and Weather Bureau aircraft observations.

1940 USWB transferred to Department of Commerce. Army and Navy establish weather centers. President Roosevelt orders Coast Guard to man ocean weather stations.

1942 A Central Analysis Center, forerunner of the National Meteorological Center (NMC), is created. Navy gives the USWB 25 surplus aircraft radars to be modified for ground meteorological use, marking the start of the first weather radar system in the U.S.

1948 Air Force meteorologists issue first tornado warning from a military installation. Princeton's Institute for Advanced Studies begins research into use of a computer for weather forecasting. Chicago Weather Bureau office demonstrates use of facsimile for map transmission.

1950 30-day outlooks and “tornado alerts” begin.

1951 Forerunner of the National Severe Storms Forecast Center begins at Tinker AFB, OK. National Weather Records Center opens at Asheville.

1952 USWB organizes Severe Local Storms Forecasting Unit in Washington and begins issuing tornado forecasts.

1954 The USWB Navy Air Force, MIT, and University of Chicago form a Joint Numerical Prediction Unit at Suitland, using an IBM 701. First radar designed for meteorological use, AN/CPS-9, is unveiled by USAF.

1955 Scheduled operational computer forecasts begin by the Joint Numerical Forecast Unit. USWB becomes a pioneer in civilian uses of computers, along with Census Bureau. Development of Barotropic Model begins.

1957 USWB accepts Dr. James Brantly's proposal of Cornell Aeronautical Laboratories to modify surplus Navy Doppler radars for severe storm observation. First endeavor to use Doppler radar in meteorology.

1958 NMC is established.

1959 Feasibility of a weather satellite is demonstrated. First WSR-57 weather radar is installed at Miami Hurricane Forecast Center.

1960 World's first weather satellite, TIROS I, launched. First advisories on air pollution issued.

1961 National Severe Storms Forecast Center established in Kansas City. First official forecast of clear air turbulence issued.

1963 TIROS III launched with automatic picture transmission (APT) capability, eventually provides images to over 100 nations.

1964 National Severe Storms Laboratory established.

1965 ESSA created.

1966 NMC introduces computer model capable of making sea-level predictions as accurate as those made manually.

1967 Fire weather forecasts extended to cover contiguous U.S.

1970 ESSA becomes NOAA.

1973 National Weather Service purchases its second generation radar (WSR-74).

1975 First Geostationary Operational Environmental Satellite (GOES) launched, for hurricane detection.

1976 Real-time operational forecasts and warnings using Doppler radar are evaluated by the Joint Doppler Operational Radar Project (JDOP), spawning third generation weather radar (WSR-88D).

1977 Success of weather satellites causes elimination of last U.S. weather observation ships. National centers have real-time access to satellite data.

1979 Nested Grid Model (NGM) becomes operational. Global Data Assimilation System (GDAS) developed. Automation of Field Operations and Services (AFOS) computer system deployed. System is the most ambitious computer network system yet created, setting records of volume of data and entry points while supporting word processing and other capabilities.

1980 Weather satellites spot eruption of Mt. St. Helens, beginning a trend of increasing usage for volcanic eruption detection. Mr. Edward Stoll, cooperative observer since 1905 honored at the White House.

1984 First official Air Transportable Mobile Unit (ATMU), a remote observing and forecasting unit, dispatched to the Shasta-Trinity National Forest wildfire. Removal of teletypewriters begins.

1989 Eight year national plan for modernization of the NWS is announced.

1990 Cray Y-MP8 supercomputer installed at NMC. Contract option exercised with UNISYS for full-scale production of 165 WSR-88D radars and 300 display subsystems, installation begins immediately. Automatic Surface Observing System (ASOS) development and planning nears completion.

1991 ASOS contract awarded to AAI Corporation.

1992 First 10 Limited-Production WSR-88D's are fully installed. Advanced Weather Information Processing System (AWIPS) Development Phase contract awarded to Planning Research Corporation (PRC). AWIPS is a UNIX-based communication and workstation replacement for AFOS.

1993 Two to three WSR-88D's are installed per month, most collocated with new or refurbished NWS offices, as production ramps up.

1994 Climate Analysis Center begins issuing long lead forecasts out to one year in the future. New Cray C-90 supercomputer dedicated at NMC. NOAA/EPA launch ultraviolet exposure index. GOES 8 launches a new generation of 3-axis stabilized geostationary weather satellites.

1995 NMC reorganizes into NCEP, the National Centers for Environmental Prediction, to better serve the public.

1996 NWS retires last of the original 1957 Weather Surveillance Radars (WSR-57) in Charleston, South Carolina.

1997 Secretary of Commerce approves production and installation of the initial 21 interactive weather computer and communication systems at NWS forecast offices. The system, known as AWIPS, allows forecasters to display and analyze satellite imagery, radar data, automated weather observations, and computer generated numerical forecasts all in one work station.

1998 Final WSR-88D Radar commissioned in North Webster, Indiana, completing NWS network of doppler weather radars covering the Nation.